AVSIM Commercial Hardware Review

The Logitech G940

Product Information		
Publishers: Logitech		
Description: Flight control hardware.		
Download Size: NA	**Format:** Hardware	**Simulation Type:** All
Reviewed by: Kevin Glover AVSIM Contributing Reviewer - October 13, 2009		

Introduction

The Logitech G940 is the equivalent of the F-22 in controller circles; bigger, better, and revolutionary. This package comes at you with an extensive list of features and a very sleek physical appearance. First glances at the product page and the controller itself make a very favorable impression- but as we all know, first impressions can't always be trusted. Let's see if this one can.

First Impressions

Unboxing the product for the first time. Note large box and securing cardboard inserts.

The controller comes very securely packaged in a large cardboard frame. In the box you'll find a quick-start guide, a sheet of decals to apply to buttons, a CD with Logitech's drivers and profiling software, and the AC power cable. Now, you'll want to follow the instructions on the quick-start guide otherwise you might end up with some odd issues which are obscure enough to take some time to figure out.

Once one finishes drooling and fondling each device, it's time to go ahead and pop the CD into the drive. Oftentimes these CD's have outdated drivers, so check what current ones are available from Logitech's website before running the CD.

The program will alert the user when it is time to plug in the controller; as the throttle and pedals are plugged into the back of the joystick. Then, the unit is connected to power. Now it's time to go ahead and plug the USB cable from the stick into the computer. Congratulations, the G940 is more or less ready to fly.

The Logitech Profiler is, in my opinion, a very intuitive program which will allow the user to gain a good deal of versatility from the controller. Among other things, there is a three-position toggle on the face of the right throttle lever which makes it possible to select between three separate 'modes' of programming. So, through the Profiler, one can set up a unique and independent control profile for each of these different modes. I personally have never had use for such a system, but those who play multiple games or fly different aspects of flight will doubtlessly find it a welcome addition.

I must admit that I was rather daunted at the prospect of learning how to use this Profiler; I have only ever used the CH Profile Manager which is, with its immense help guide and 100+ page tutorial, somewhat involved. After using the Logitech program, I breathed a silent sigh of relief when I discovered that this program is considerably less complex.

Before doing anything else, the first step is to create a profile. Click 'Profile' on the menu bar and select 'New'. First, title the profile; then select browse and navigate to the .EXE file of whatever game you're using. This allows you to launch said game directly from the profiler.

Upon first booting up the Profiler the user is greeted by a graphical display of the throttle with a list of all of the buttons on the controller. To switch between controllers, navigate to the 'Select a Device' text on the top left-hand corner of the display and toggle between the three controllers. Now, when the mouse is over a button, a small line will appear linking it to the corresponding textual name, and vice-versa.

Clicking on the textual name will bring up a small menu with the following options: Select Keystroke, Select Command, Select Cycling Command, Assign Shift Button, Mouse Left Button, Mouse Middle Button, and Mouse Right Button. Now, these are all fairly self-explanatory and most of your questions will be answered in the Help documents. However, I will go over the first three, as these have additional steps.

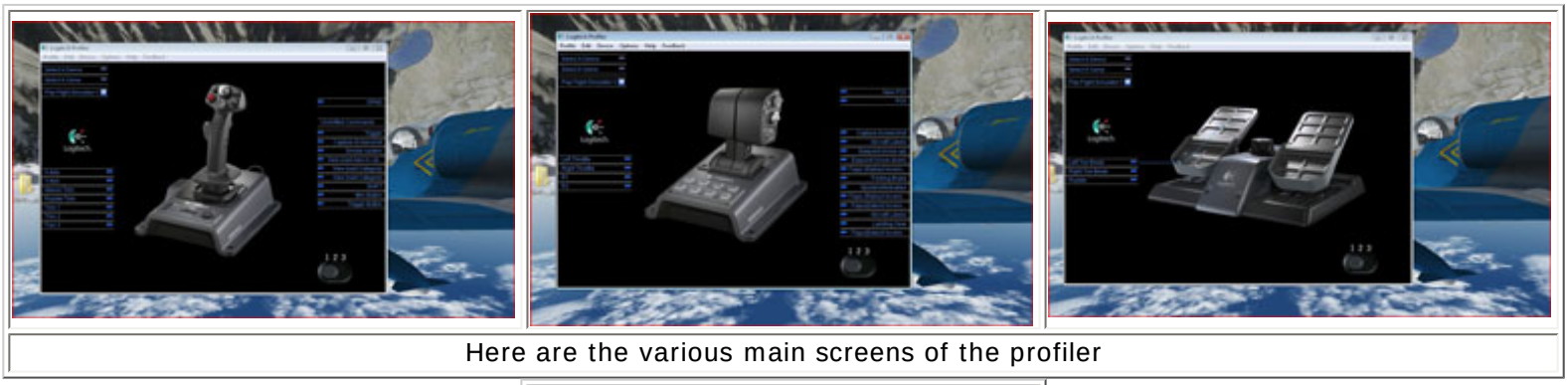
First, Select Keystroke will bring up a dialog box; most importantly, by clicking the 'Record' button, one can press any key on the keyboard which you would like that button to do when pressed. Second, the Select Command option is perhaps the most intuitive and useful function in the whole Profiler. This will (on FSX, at least) find all of the key

commands in FSX and display them in a list; one simply selects the command from the list and, easy as that, the button is programmed. Last, Cycling Command will allow you to program a button to perform commands which progress through the list that you program here. When you reach the end of the list, it starts over.

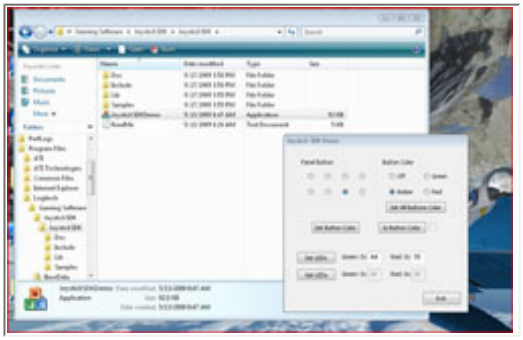
Now, just a couple more things before we get to the actual controllers. First of all, to calibrate you can either use the FSX or Logitech calibration. In the Logitech profiler, go to Device, then Game Controllers, the select your game controller and calibrate your heart out.

Lastly, when you're done setting up your profile, it will save your profile automatically under you Local Settings folder, but you can export it to any device if you'd like.

One interesting point is that when certain buttons are pushed on the stick, the Force Feedback (FF) motors will start jumping around. From what I gather, this is intended as a method of verifying that FF is working.



Here are the various main screens of the profiler



A view of the Joystick SDK Demo program for the lighted buttons

The Controllers

The joystick itself is very modest and clean in its lines; there is none of the fluff of lesser controllers and its spartan appearance underlines the fact that this controller is rather more than most. The throttle and stick each have four bolt-holes drilled into the base of the units, allowing the user to permanently attach the controller to a desk or simulator.

The Pedals

Well, we might as well start off with the simplest controller first. The base of the pedals has two retractable carpet grips, in addition to the rubber grips for slicker surfaces. In my opinion, the pedals themselves are very comfortably sized and I can wear my bulky shoes and still have them fit comfortably on the pedals.

Interestingly, there is a half-inch high lip on the bottom of the pedals which runs up the sides and tapers into the half-way point on the pedal. I have heard a few grumbles about this, which I can understand, because they can make operating the pedals uncomfortable for some users, especially if they don't wear shoes when they fly.

Between the pedals there is a large knob which controls the amount of resistance the pedals generate. On the whole, this isn't as effective as I would have liked, but things like this come down to personal opinion. Additionally, the pedals have 'toe brakes'. These are additional up-and-down axes on each pedal which allow you a great deal of

control over the brakes in the simulator - differential braking, and partial pressure is both possible and very enjoyable and easy to do.

On the whole, however, these pedals feel very sturdy; as pedals take the most beating of any flight sim hardware. They certainly have to be sturdy and I feel quite comfortable saying that I doubt I will have issues with these for many years to come.

The pedals from above with them centered and from the side with them fully deflected with right toe-brake depressed. Unit shown with optional dog fur and dust particles.

The Throttles

Most certainly one of the biggest selling points of this product is the 'dual throttle' feature. By means of a small metal rod in the base of the levers, the user can alternately lock or unlock the throttles and thus operate them separately or together. I have been spoiled by my splendid CH Throttle Quadrant which has always served me faithfully, but for the sake of this review, I unplugged all of my old CH gear so that I focused purely on this product. This is all very well and good, but it had me missing the extra levers for mixture and prop control. Fortunately, Logitech pre-empted this by putting two additional rotary-style axes on the right lever. So, in total there are four axes available on the throttle.

Separately, there are also a plethora of goodies which are somewhat extraneous but well received by me, at least. For one thing, there is not only a POV on the joystick, but also on the throttle. There is another control which is very similar to a fighter jet's mini-stick which has eight button positions, much like a POV. I assigned this to control my 'head position' in FSX. This way, I can still move about whenever I don't feel like using my Track-IR or HAT-Track.

Additionally, one finds a three-position mode selector. This corresponds to the three separate modes which can be programmed via the Profiler. I have never used these things on any of my controllers as my memory can just about keep track of all of the buttons assignments on just one profile, thank you very much.

Perhaps one of the more interesting features of the throttle are the eight buttons which are purported to be capable of changing color in relation to such things as gear or flap position in-game.

In the Logitech folder as installed by the CD, there is a simple utility which allows you to test all of the lights and change their colors. However, this is not intended for average users to be able to control the lighting features. Users with knowledge of program developing will, as the product becomes more mainstream, create programs which allow games to take advantage of this. As a matter of fact, I have it from Logitech that "[they] are aware that a user has created an interactive lighting control that works with FSX. [Logitech] has tested the beta and expect to get the final version within a week or two. When it is finished, Logitech has agreed to host the file on [their] server for all Flight Simulator X users. We expect it to be the first of many to come."

Lastly, on a bit of a side note, there is a rotating gear on the bottom of the product which allows the user to control how stiff the throttles feel – again, this didn't feel very effective to me, which is a shame as I feel that the throttles are a bit loose to start off with.

Throttle quadrant, showing the split throttles and lighted buttons. Note that the different colors was acheived by use of the Demo program mentioned above.

The Joystick

The stick features one POV-switch, a two-stage trigger, a pinkie trigger (intended for the little finger to operate the shift control, but it can really be used for anything), as well as other assorted buttons. Most interestingly, there is an odd little miniature axis, complete with pushbutton, mounted on the top of the joystick above the POV.

This can be assigned two separate control axes and operates just like a miniature joystick. This ‘mini-axis’ is analog, and thus only has X and Y directions of travel. I personally assigned this to pan the view left-to-right, but for some reason it wouldn’t calibrate properly and I have since cleared the assignment. As it would happen, this was fixed in release 5.08, so if you’re experiencing this problem, go ahead and download the latest version from Logitech.

The joystick is fairly heavy, which is definitely a good thing since extra force is used upon it to overcome the force feedback. The base is rather large and comes equipped with rubber grips to prevent sliding. The unit on the whole, strikes me as rather large- especially the circumference of the joystick.

As a pianist, I pride myself on having very decently sized hands and oddly enough, I found it somewhat uncomfortable to use when resting the first finger on the trigger for long periods of time. Although everyone is different, I think this unit is designed more for function than ergonomics. On this same note, I personally found that my forearm would press some of the lighted buttons when resting my hand on the throttle levers.

One rather nice thing about this stick is the addition of three axes on the base of the unit. These are intended to control trim on an aircraft. Since only the elevator trim has an axis in the FSX menu, you can set aileron and rudder trim via Zone commands.

This is where the control will perform. For example, the key command for aileron trim left for a leftward motion of the control. The same principle applies for the other axes.

The Joystick, from the front and side. The most important controller, but with the least images. Go figure.

Force Feedback

Now, before I start, I want any interested parties to head over to the Logitech forum.

There are reports of some possible circuitry issues with overheating and arcing. I have only experienced the overheating issue once, and that was when the joystick was being used for many more hours then I usually use it. I'd say it was plugged in and switched on for a good six hours. The left side of the base, especially the bottom, became hot to the touch. Not enough to start a fire, but there are obviously some problems.

Right now there are hardly any Force Feedback (FF) joysticks on the market. There are aging Microsoft SideWinders and a few miscellaneous brands, but it always strikes me as odd that this particular aspect of gaming technology has not been developed more intensively.

Interestingly, Saitek has recently announced a new joystick which, if the vague hook email can be trusted, will use force feedback and will doubtlessly come into direct competition with the Logitech G940. It made me chuckle, honestly, as I would hazard a guess that the Saitek unit was started shortly after they got wind of the Logitech one. These are just my musings, of course, but it will be interesting to see how it turns out.

Back on topic- the G940 uses something called I-Force technology from Immersion Corporation. Now, this technology will probably mean very little to people who haven't owned FF joysticks before. Having never experienced FF on a joystick, it certainly didn't to me, but I'll try to explain just what it is.

More or less, I-Force is a pre-coded engine that controls how the joystick responds to stimuli from whatever game you're playing. As products with I-Force have their own chip dedicated to processing FF commands, it is intended to take some of the load off of the CPU and actual game engine. Additionally, it can coordinate the motors to replicate multiple forces, such as rolling along a dirt strip with wind gusts at the same time.

Interestingly, the G940 is a bit slow on the uptake. If I have the stick full right and swing it quickly to the left, there will be a short moment with no resistance before the computers kick in. I personally found FF to be a welcome change to flopping a joystick around like a dead fish. Nonetheless, it's apparent that whether the fault lies with I-Force or FSX itself, FF is something that hasn't been developed to its potential.

Despite this, there are still some effects which add to the realism of the simulator. For instance, there is a zone which occupies about half of the range of motion of the joystick which is rather limp; when you're outside this zone, the motors kick in a bit more. Now, to me, this sort of represents the gradually increasing amount of force required when

moving the controls.

It also gets a bit stronger when the resistance on the controls, whether from G-forces or speed, is stronger. Mind you, I think the motors are set somewhat weak by default (they're at 100%), so I set them all to full power (150%) via the Profiler. After this, the subtler effects such as the landing gear and flap 'bumps' were actually there; in default settings, I couldn't feel them. I might change this to prolong the life of the controller, however.

The G940 is considerably more advanced in regards to force feedback, and previously game developers did not have hardware capable of performing what they wished. Thus, force feedback has long been neglected by developers, especially in the Flight Simulation world. Logitech plans on working with developers in the future to take advantage of the G940's increased capabilities (perhaps one such example will be Aerosoft's upcoming simulator????)

A Flight with the G940

Test System
Intel Q6600 at 2.4 GHz Windows Vista Home Edition 64 bit MSI P35 Neo II ATI 4850 512MB 2GB Corsair Dominator Microsoft Flight Simulator X, Acceleration

Whenever I review hardware, I like to include a section like this. It's my attempt to show some of the practical pros and cons of the hardware which would be awkward to discuss in earlier sections, wherein I focus more on the technical aspect.

So, here we are in the Acceleration F-18 Hornet practicing carrier landings. Test the controls and make sure everything's working properly, start the engines, and then we'll actually get to some flying. Now, having the separate modes available via the switch on the throttle can be very useful when applied to some of the new feature made available by Acceleration.

The carrier functions are a perfect example, as you can have a mode specifically for all of the carrier-related commands. So, select your new mode and head on over to a catapult. Get lined up, then ready your aircraft via the buttons assigned on your controllers. Slowly increase throttle and with a finger resting on the trigger, click it and release the catapult - you're off.

Now that you're climbing, throttle back a bit and raise the gear. As you climb, make sure to use the trim wheel on the joystick to maintain the proper settings for your weight. Fly around at your leisure and then get ready for landing.

Now, carrier landings can be incredibly stressful; even in the relatively relaxed atmosphere of your living-room cockpit. Trying to find awkward key-commands while simultaneously keeping you attitude and speed correct could tax the resources of even the most nimble octopus. However, since you're lucky enough to own a Logitech G940, you have a plethora of buttons which, thanks to the convenient HOTAS setup, are all easily and quickly accessed.

So, get that gear down, tail-hook ready, spoiler armed, trim set, and bladder tensed as you approach the carrier. Now, since we're in the F-18 Hornet, visibility isn't a problem, but if you were on an older tail-dragger you might want to scoot your view-point to the side a bit with the mini-stick on the throttle for better view. On this same note, since there's a POV on both the joystick and the throttle, you can still look around via the one on the throttle when your right thumb is busy manipulating other buttons.

This feature is incredibly useful. Think I'm kidding? I'm not - this is arguably my favorite of the more 'minor' features.

Anyway, by now you ought to be down on the deck of the Nimitz or carrier of choice. How well you did will largely depend on your own skills, but I daresay you'll find that the increased finesse and realism offered by the controller and FF will have probably helped out a bit. If not, take her up again and keep on practicing!

Pricing

I hardly need to mention as it's probably on nearly everyone's mind, but the economy is not at its best right now. $300 is a lot to spend on a controller for a computer simulator, and if one's situation is anything like mine, I daresay that most people won't buy this if their current controller works fine. However, if someone needed a HOTAS system as a replacement for a broken unit or is fortunate enough to be able to afford a yoke-type setup and a HOTAS, then I would fancy that this unit affords the best value-for-money on the market.

I will be one of the first to compare this unit to the Saitek X-52 Pro. The X-52 has had a long and glorious career as

one of the pinnacles of the flight simulator world – change, however, is a good and constant thing. For the most part, Saitek units run in the upper $100's, although I have seen them stray to as much as $200.

Depending where purchased, the G940 can provide not only the rarity of decent Force Feedback, but also very high-quality pedals for around $100 more (on a rough average). Now, it's up to individual users to decide what's best for them. Perhaps they already have pedals and are willing to forgo dual-throttle and FF for the lesser cost of the X-52. Every situation is unique, so one should simply use their best judgement. I rather fancy that either path will lead to many years of happy flying.

Final Word

It's a rare opportunity for a reviewer to cover what he feels will be one of the great pillars of our community, but I feel that in the Logitech G940, I have. As with any controller unit, there are occasional quirks which different users will either appreciate or bemoan, but despite small issues like this, my overwhelming feel is that this is truly a quality unit.

I won't tell anyone to buy it or not, but I feel that I can confidently say that this is the definitive HOTAS or Force Feedback-enabled system available, period exclamation point.

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Logitech G940

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